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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/501,078	02/09/2000	Arnon Netzer	180/01261	3371

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EXAMINER	
WON, YOUNG N	

ART UNIT	PAPER NUMBER
2155	19

DATE MAILED: 03/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/501,078	NETZER ET AL.	
	Examiner	Art Unit	
	Young N Won	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-11,13,17,18 and 26-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-11,13,17,18 and 26-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Claims 6, 12, 14-16, and 19-25 have been cancelled.

2. Amended claims 1, 7, 17, and 26, new claim 34 has been examined.

3. Claims 2-5, 8-11, 13, 18, and 27-33 has been re-examined.

4. The objection to the drawings has been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 34 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 34 is stated to be supported by the "description for example on page 14, lines 1-2". Page 14, lines 1-2, state "In the preferred embodiment of the present invention, when two or more channels have the

same cycle and the same QoS, the scheduler selects one" which neither suggests nor concludes that "if a channel is not processed in its respective cycle the channel suffers from starvation".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 7-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. (US 5,712,851 A) in view of Baker-Harvey (US 6,385,638 B1).

As per claim 1, Nguyen teaches a method (see abstract) of scheduling the handling of data from a plurality of channels, comprising: accumulating data from a plurality of channels (see col.2, lines 1-4), at respective predetermined input rates (see col.3, lines 2-5); providing data of each of the plurality of channels, at respective predetermined output rates (see col.3, lines 15-17); scheduling a processor (see abstract: "processor for scheduling"; col.2, line 15; and col.3, line 2) to handle the accumulated data from at least one first one of the channels (see col.3, lines 9-12),

without interruption (see col.3, lines 5-7), once during a first cycle time (see col.2, lines 9-19), defined by the respective input and output rates of the first channels (see col.3, lines 2-5 & 15-17); and scheduling the processor to handle the accumulated data from at least one second one of the channels, without interruption (see col.3, lines 2-7), once during a second cycle time different from the first cycle time (see col.2, lines 9-19), the second cycle time being defined by the respective input and output rates of the second channels (see col.3, lines 2-5 & 15-17). Nguyen does not teach that the system is a server. Baker-Harvey teaches of a scheduler system that is a server (see col.17, lines 15-17). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to employ the teachings of Baker-Harvey within the system of Nguyen, by implementing a server comprising of the functionality of scheduler system, because servers are computing devices with a processor for performing a single dedicated operation or duty such as routing or switching, retrieving and storing, hosting web pages, ect. Therefore, servers are interchangeable with computers, routers, bridges, switches, or anything that has a processor and performs dedicated operations.

As per claim 2, Nguyen further teaches wherein the first cycle begins concurrently with a second cycle (see col.2, lines 16-19 and col.3, lines 8-12 & 34-35).

As per claim 3, Nguyen further teaches wherein the first cycle time is an integer multiple of the second cycle time (see col.4, lines 12-23).

As per claim 4, Nguyen further teaches wherein scheduling the processor to handle the accumulated data comprises scheduling, the processor, during the second cycle, to handle the accumulated data from substantially all the at least one second

channels, before scheduling the processor to handle data from any other of the plurality of channels (see col.2, lines 22-24).

As per claim 5, Nguyen further teaches wherein scheduling the processor to handle the accumulated data from the at least one first one of the channels comprises checking or determining whether the second cycle (short cycle) has elapsed and scheduling the processor to handle the accumulated data from one of the at least one first channels (long cycle channel) only if the second cycle (short cycle) has not elapsed (see claim 26 rejection above).

As per claim 7, Nguyen further teaches wherein the scheduling comprises scheduling the processor to handle the accumulated data from at least one of the second channels at least twice before scheduling the processor to handle data from at least one of the first channels (see col.3, 26-28; and col.4, lines 12-15: **NOTE:** If the # of slots in the slot ring is determined by the VC with the lowest cell rate, then obviously a VC with a larger cell rate will occupy more slot ring, thereby causing the processor to handle the accumulated data at least twice).

As per claim 8, Nguyen further teaches wherein scheduling the processor to handle the accumulated data comprises allowing the: processor to utilize up to a predetermined amount of processing time for each channel (see col.2, line 6).

As per claim 9, Nguyen does not teach wherein the processor runs an operating system, which performs preemption; therefore by reasons of obviousness, Nguyen further teaches wherein the processor does not run an operating system, which performs preemption.

As per claim 10, Nguyen further teaches wherein scheduling the processor comprises having the processor wait without handling data from any of the channels if all the channels were scheduled for handling during their respective current cycles (see col.3, lines 35-37).

As per claim 11, Nguyen teaches of further comprising measuring the waiting time of the processor in the first cycle and using the measured time in determining whether to accept handling data from an additional channel (see col.3, lines 36-34).

As per claim 13, Nguyen further teaches of further comprising processing an entire block of accumulated data of the scheduled channel responsive to the scheduling (see col.2, lines 15-19).

7. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. (US 5,712,851 A) in view of Baker-Harvey (US 6,385,638 B1) and Gray et al. (US 5568402 A).

As per claim 17, Nguyen teaches of a remote access device, comprising: accumulating data from respective channels (see col.2, lines 1-4), at respective predetermined input rates and provide data of each of the plurality of channels, at respective predetermined output rates (see col.3, lines 2-5 & 15-17); a processor which handles the accumulated data (see col.3, lines 2-4); and a scheduler which schedules the processor to handle accumulated data from a first channel once during a first cycle time (see col.3, lines 9-12), and data from a second channel once during a second cycle

time different from the first cycle time, without interrupting the processor while it is processing data from a channel (see col.3, lines 9-12).

Nguyen does not teach that the remote access device is a server or that it comprises of a plurality of channel drivers. Baker-Harvey teaches of a server (see claim 1 rejection above) and channel drivers (see col.15, lines 21-22). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to employ the teachings of Baker-Harvey within the system of Nguyen, by implementing a driver for the plurality of channels within the scheduler system, because without drivers, the processor would not know that the channels exists and therefore would not accumulate the data from that channel.

Nguyen does not teach wherein the scheduler schedules the processor to handle accumulated data defined by the timing of the driver of the first channel. Gray teaches wherein the scheduler schedules the processor to handle accumulated data defined by the timing of the driver of the first channel (see col.5, lines 8-10). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to employ the teachings of Gray within the system of Nguyen, by implementing a scheduler to schedules the processor to handle accumulated data defined by the timing of the driver within the scheduler system, because this would enable the shortest possible transmission rate since the shortest time interval for an input or output of data cannot exceed the cycle time of channel drivers

As per claim 18, Nguyen further teaches wherein the scheduling comprises scheduling the processor to handle the accumulated data from at least one of the first

channel at least twice before scheduling the processor to handle data from at least one of the second channel (see col.3, 26-28; and col.4, lines 12-15: **NOTE:** If the # of slots in the slot ring is determined by the VC with the lowest cell rate, then obviously a VC with a larger cell rate will occupy more slot ring, thereby causing the processor to handle the accumulated data at least twice).

8. Claims 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witchey (US 5,563,885 A) in view of Miller et al. (US 5,987,031 A).

As per claim 26, Witchy teaches of a method of scheduling the handling of data (see col.2, lines 42-44), keeping track of a short cycle and a long cycle (see col.2, line 29 and col.11, lines 4-6), from a plurality of channels including at least one short cycle channel and at least one long cycle channel (see col.3, lines 62-66), comprising: accumulating data from the plurality of channels (see col.5, lines 38-41); scheduling a processor to handle the accumulated data from all the short cycle channels (see col.3, lines 62-66); determining whether a current short cycle has elapsed after scheduling the processor to handle the data from all the short cycle channels (see col.2, lines 57-63 and col.3, line 67 to col.4, line 3); and scheduling the processor to handle the accumulated data from one of the at least one long cycle channel if the current short cycle did not elapse according to the determining, if there is a long cycle channel which was not scheduled yet during the current long cycle (see col.2, lines 25-30 and 57-63 and col.6, lines 39-64). Witchy does not teach that the scheduler system is a server.

Miller teaches of a scheduler system that is a server (see col.3, lines 39-42). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to employ the teachings of Miller within the system of Witchy, by implementing a server comprising of the functionality of scheduler system, because servers are computing devices with a processor for performing a single dedicated operation or duty such as routing or switching, retrieving and storing, hosting web pages, ect. Therefore, servers are interchangeable with computers, routers, bridges, switches, or anything that has a processor and performs dedicated operations. Witchy does not explicitly teach short or long cycle channels, but it would be inherent that "variable input rates" (see col.2, line 29) comprises of both short and long cycle channels.

As per claim 27, Witchey teaches of further comprising determining whether the current short cycle has elapsed after scheduling the processor to handle the data from the long cycle channel, and scheduling the processor to handle the accumulated data from an additional long cycle channel, if the current short cycle did not elapse (see col.2, lines 25-30 and 57-63 and col.6, lines 39-64).

As per claim 28, teaches of further comprising of waiting, after scheduling the processor to handle the data from all the short cycle channels, until the beginning of the next short cycle without processing data from any channel, if all the long cycle channels were already scheduled during the current long cycle (see col.6, lines 17-31).

As per claim 29, further teaches wherein the long cycle begins concurrently with a second cycle short cycle (see col.6, lines 23-25).

As per claim 30, further teaches wherein the long cycle time is an integer multiple of the short cycle time (see col.8, lines 11-21).

As per claim 31, Witchy teaches a method of scheduling the handling of a plurality of connections, comprising: accumulating data from a plurality of channels (see col.5, lines 38-41) by a remote access server (see claim 26 rejection above); determining for at least one of the connections a quality of service level and scheduling the processor to process data from the plurality of connections in an order determined responsive to the determined quality of service level (see col.7, lines 39-45).

As per claim 32, Witchy further teaches wherein the scheduling comprises scheduling the processor to handle data from at least one first connection before handling data from at least one second connection having a lower quality of service level than the at least one first connection (see col.2, lines 4-8).

As per claim 33, Witchy does not teach of further comprising changing the quality of service level of at least one of the connections while accumulating the data and changing the order of scheduling responsive to the change in the quality of service level (see col.5, lines 38-52; col.6, lines 40-45; and col.7, lines 42-45).

Response to Arguments

9. Claim 34 is neither supported nor suggested by the "description for example on page 14, lines 1-2".

10. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "fixed cycles") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Nonetheless, Nguyen does teach that the cycles are fixed (see col.3, lines 15-19).

11. In regards to applicant's arguments against the Baker-Harvey reference, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

12. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Baker-Harvey

reference was used only for the limitation that the system of Nguyen could be implemented as a server including channel drivers.

13. In regards to argument of claim 2, which depend on claim 1, Nguyen clearly teaches that the cycles are concurrent. To further teach this limitation another reference location has been shown (see claim 2 rejection above).

14. In regards to argument of claim 4, which depend on claim 1, the slot "includes a virtual channel identifier (VCID) of a virtual channel (VC) to be serviced", thus if the slot is "circularly processed in a continuous fashion", then clearly the VC is also serviced in a continuous fashion.

15. Applicant's arguments with respect to claims 26, and 31-33, have been considered and therefore necessitate new ground(s) of rejection. This action is non-final

Conclusion

It is the duty of the Examiner in protecting the public to view the claims as broadly as it is written. The Examiner must interpret the claims as one of ordinary skill in the art, and will not conclude or assume the interpretation beyond the scope of what is written in the claims. If a channel cycle is "fixed", then the applicant must state in the claim that it is "fixed". By reciting that the "cycle time being defined by the respective

input and output rates of the second channel" does not imply that a cycle channel is "fixed". The claims must clearly define the invention to overcome prior art and eliminate any obviousness to combine. To expedite the prosecution of the application, it would be in the best interest of the applicant to amend the claims to distinctly and accurately claim the invention whereby the claims avoid any ambiguities.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Young N Won whose telephone number is 703-605-4241. The examiner can normally be reached on M-Th: 8AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 703-305-9648. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Young N Won

March 12, 2003

AYAZ SHEIKH
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